

REMARKS

This is a full and timely response to the non-final Office Action of June 6, 2005.

Reexamination, reconsideration, and allowance of the application and all presently pending claims are respectfully requested.

Upon entry of this First Response, claims 1-26 and 28-51 are pending in this application. The specification and claims 1, 10, 11, 17, 18, 20-23, 25, 26, 28, 29, 31-36, 38, 39, 41, and 42 are directly amended herein, and claims 43-51 are newly added. Further, claim 27 is canceled without prejudice or disclaimer. It is believed that the foregoing amendments add no new matter to the present application.

Response to Specification Objections

The specification is objected to as allegedly containing various informalities. The specification has been amended herein to correct for the alleged informalities, and Applicants respectfully request that the objections to the specification be withdrawn.

Response to Claim Objections

Claims 28, 36, 38, and 39 presently stand objected to in the Office Action as allegedly containing various informalities. Claims 28, 36, 38, and 39 have been amended herein in order to clarify and better define the scope of these claims. Applicants respectfully assert that the amendments to claims 28, 36, 38, and 39 moot the outstanding objections to these claims and request that the objections to claims 28, 36, 38, and 39 be withdrawn.

Response to §112 Rejections

Claims 10, 17, 33, and 41 presently stand rejected under 35 U.S.C. §112, second paragraph, as allegedly failing to particularly point out and distinctly claim the subject matter, which Applicants regard as the invention. Claims 10, 17, 33, and 41 have been amended herein in order to clarify and better define the scope of these claims. Applicants respectfully assert that claims 10, 17, 33, and 41, as amended, satisfy the requirements of 35 U.S.C. §112, second paragraph. Accordingly, Applicants respectfully request that the 35 U.S.C. §112, second paragraph, rejections of claims 10, 17, 33, and 41 be withdrawn.

Response to §102 and §103 Rejections

A proper rejection of a claim under 35 U.S.C. §102 requires that a single prior art reference disclose each element of the claim. See, e.g., *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983). In addition, in order for a claim to be properly rejected under 35 U.S.C. §103, the combined teachings of the prior art references must suggest all features of the claimed invention to one of ordinary skill in the art. See, e.g., *In Re Dow Chemical Co.*, 837 F.2d 469, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988), and *In re Keller*, 642 F.2d 413, 208 U.S.P.Q. 871, 881 (C.C.P.A. 1981). Moreover, “(t)he PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.” *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988) (Citations omitted). Furthermore, “(o)n

the issue of obviousness, the combined teachings of the prior art as a whole must be considered,” *EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 225 U.S.P.Q. 20, 25 (Fed. Cir. 1985), and “(i)t is impermissible, however, to simply engage in hindsight reconstruction of the claimed invention, using the applicant’s structure as a template and selecting elements from references to fill the gaps.” *In re Gorman*, 933 F.2d 982, 987, 18 U.S.P.Q.2d 1885 (1991).

Claim 1

Claim 1 presently stands rejected under 35 U.S.C. §102 as allegedly being anticipated by *Hartman* (U.S. H780). Claim 1, as amended, reads as follows:

1. A spectral correlator, comprising:
a specimen; and
an optical device configured to collect light from the specimen and to
optically determine a similarity of a received first spectra of the light collected from
the first spectra and a second known spectra *by directly comparing the light to a
representation of the second known spectra.* (Emphasis added).

Applicants respectfully assert that *Hartman* fails to disclose at least the features of claim 1 highlighted above. Accordingly, the 35 U.S.C. §102 rejection of claim 1, as amended, is improper.

In this regard, in *Hartman*, the spectrometer 10 operates upon a specimen 12 to produce an output 14. This output 14 is then “transmitt[ed] to image formulating modulator 16.” See *Hartman*, column 2, lines 36, 37. Such a modulator 16 may then produce a representation of the output 14 when illuminated by an appropriate light source, such as a laser diode. See *Hartman*, column 2, line 37. Specifically, it appears that *Hartman* discloses that the modulator and light source are required for the device disclosed by *Hartman* to function, yet the light source does not

illuminate the specimen, the light source appears to illuminate the modulator 16. As a result, *Hartman* does not “*directly compar[e] the light to a representation of the second known spectra*,” as claimed in claim 1. Instead, the system in *Hartman* appears to compare a representation of the output 14 to a representation of the known spectra contained within the matched filter 20.

Thus, since the matched filter 20 apparently compares an electronic representation of the light spectra 14 and not the light spectra 14 itself to the spectra of the known species, there is no *direct* comparison of any light to any representation of a known spectra. Accordingly, Applicants respectfully assert that *Hartman* fails to disclose at least “*directly comparing the light to a representation of the second known spectra*,” as described by claim 1. (Emphasis added).

For at least the above reasons, Applicants respectfully assert that *Hartman* fails to disclose each feature of claim 1, and the 35 U.S.C. §102 rejection of claim 1 should be withdrawn.

Claims 2-17

Claims 2 and 3 presently stand rejected in the Office Action under 35 U.S.C. §102 as allegedly being anticipated by *Hartman*. Further, claims 4-8 and 11-15 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Freyre* (U.S. Patent No. 5,987,188). In addition, claims 9, 10, 16, and 17 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Barringer* (U.S. Patent No. 3,518,002) in view of *Hartman* and *Freyre*. Applicants submit that the pending dependent claims 2-17 contain all features of their respective independent claim 1. Since claim 1

should be allowed, as argued hereinabove, pending dependent claims 2-17 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 18

Claim 18 presently stands rejected under 35 U.S.C. §102 as allegedly being anticipated by *Hartman*. Claim 18, as amended, reads as follows:

18. A spectral correlator, comprising:
a specimen;
an illuminating device configured to illuminate the specimen; and
an optical device configured to optically determine the similarity of a received spectra resulting from the illumination of the specimen and a known spectra. (Emphasis added).

Applicants respectfully assert that *Hartman* fails to disclose at least the features of claim 18 highlighted above. Accordingly, the 35 U.S.C. §102 rejection of claim 18, as amended, is improper.

In this regard, as set forth hereinabove in the arguments for allowance of claim 1, it appears that *Hartman* discloses a light source, e.g., a laser diode, for illuminating the modulator 16. Notably, *Hartman* specifically states that the disclosed method is

“carried out by utilizing a spectrometer 10 that has a chemical compound sample therein...and an output such as that illustrated at 14 is produced by spectrometer 10.”

See *Hartman*, column 2, lines 30-35.

Notably, the specimen to be tested in *Hartman* is within a spectrometer that appears to collect passive light, i.e., “Spectrometers...include those that operate to produce an output in the ultraviolet, visible, and infrared.” See *Hartman*, column 2, lines 7-11. Accordingly, Applicants submit that *Hartman* fails to disclose “an illuminating device **configured to illuminate the specimen,**” as recited in claim 18. (Emphasis added). The laser diode does not appear to illuminate the specimen, and the spectrometer does not appear to illuminate the specimen.

For at least the above reasons, Applicants respectfully assert that *Hartman* fails to disclose each feature of claim 18, as amended. Therefore, the 35 U.S.C. §102 rejection of claim 18 should be withdrawn.

Claims 19-26, 28-33, and 51

Claims 19 and 20 presently stand rejected in the Office Action under 35 U.S.C. §102 as allegedly being anticipated by *Hartman*. Further, claims 21-25 and 28-31 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Freyre*. In addition, claims 26, 32, and 33 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Schnell* (U.S. Patent No. 4,620,284) in view of *Hartman* and *Freyre*. Furthermore, claim 51 is newly added. Applicants submit that the pending dependent claims 19-26, 28-33, and 51 contain all features of their respective independent claim 18. Since claim 18 should be allowed, as argued hereinabove, pending dependent claims 19-26, 28-33, and 51 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 34

Claim 34 presently stands rejected under 35 U.S.C. §102 as allegedly being anticipated by *Hartman*. Claim 34, as amended, reads as follows:

34. A spectral correlator, comprising:
a specimen;
means for receiving light reflected off and/or emitted by the specimen; and
means for optically correlating the light received to determine the similarity of the spectra of the received light from the specimen and a second known spectra, ***the correlating means having an optical filter for filtering the light***, the optical filter indicative of the second known spectra such that the filtered light has an intensity indicative of the degree to which the spectra of the received light and the second known spectra are similar. (Emphasis added).

For at least the reasons set forth above in the arguments for allowance of pending claim 18, Applicants respectfully assert that *Hartman* fails to disclose an “optical” filter that is configured to

“filter light.” Accordingly, *Hartman* fails to disclose at least the features of claim 34 highlighted hereinabove, and Applicants request that the 35 U.S.C. §102 rejection of claim 34 be withdrawn.

Claim 35

Claim 35 presently stands rejected under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Freyre*. Claim 35 presently reads as follows:

35. A spectral correlation method, comprising the steps of:
receiving light from a specimen;
optically performing a first Fourier transform on a first spectra of the light as the light is passing through a first lens to obtain a transformed first spectra;
optically multiplying the transformed first spectra with a representation of a known spectra to obtain a similarity signal;
focusing, via a second lens, the similarity signal on a detector; and
providing an indication as to whether at least one substance is present in the specimen based on the similarity signal. (Emphasis added).

Applicants respectfully assert that the combination of *Hartman* and *Freyre* fails to suggest at least the features of claim 35 highlighted above. Accordingly, the 35 U.S.C. §103 rejection of claim 35, as amended, is improper.

In this regard, *Hartman* fails to disclose performing a Fourier transform on any spectra. Further, *Freyre* appears to disclose performing a Fourier transform on a light beam. See column 1, lines 25-28. However, the light beam is not “from a specimen.” In this regard, it appears that a “spatial modulator” in *Hartman* is used to impress an electronic image from a camera on a “coherent light beam” before the Fourier transformation. See column 1, lines 45-51. Clearly, an electronic image from a camera is not “light from a specimen,” as described by claim 35. Further, there is nothing in *Freyre* to suggest that the “coherent light beam” is “from a specimen.”

Accordingly, neither *Hartman* nor *Freyre* suggests “optically performing a first Fourier transform on a first spectra of the light (from a specimen) as the light is passing through a first lens,” as described by claim 35.

For at least the above reasons, Applicants respectfully assert that the cited art fails to suggest each feature of claim 35, and the 35 U.S.C. §103 rejection of claim 35 should, therefore, be withdrawn.

No Motivation to Combine

When combining references to reject a claimed invention under 35 U.S.C. §103, it is incumbent on the Patent Office to establish that the cited art suggests the alleged combination. In this regard, “(w)hen the patented invention is made by combining known components to achieve a new system, the prior art must provide a suggestion or motivation to make such a combination.”

Heidelberger Druckmaschinen v. Hantscho Commercial Products, Inc., 21 F.3d 1068, 1072, 30 U.S.P.Q.2d 1377 (Fed. Cir. 1986). Applicants respectfully submit that the Office Action fails to establish such a suggestion or motivation with respect to the combination of *Hartman* and *Freyre*.

In this regard, in rejecting claim 35, it is asserted in the Office Action that:

“It would have been obvious to one of ordinary skill in the art at the time of (the) invention to use any well-known type of optical correlator, including the Van der Lugt type, for the correlation of sample spectra in the device of *Hartman* to facilitate the analysis of a sample.”

Applicants respectfully assert that the proffered reason for combining *Hartman* and *Freyre* is insufficient for overcoming the Patent Office’s burden of establishing a *prima facie* case of obviousness.

In particular, as described above in the arguments for allowance of claim 1, *Hartman* does not appear to compare optical images but rather appears to compare electronic representations of optical images. *Freyre*, on the other hand, discloses an optical correlator that manipulates optical signals, not electrical signals. Thus, one of ordinary skill in the art, upon reading both *Freyre* and *Hartman*, would be discouraged from substituting the correlator for comparing electrical signals of *Hartman* with an optical correlator for transforming optical signals in *Freyre*. A reference “teaches away” from the claimed invention and should not be used to reject the claimed invention under 35 U.S.C. §103 “when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *In re Gurley*, 2 F.3d 551, 31 U.S.P.Q.2d 1130, 1131 (Fed. Cir. 1994).

In addition, when the cited art is properly viewed as a whole, it becomes apparent that the combination of *Hartman* and *Freyre* is not based on the teachings of the cited art but is instead based on impermissible hindsight reconstruction of Applicants’ invention. In this regard, *Hartman* and *Freyre* are attempting are solving very different problems. In particular, *Hartman*, like the inventors of the instant application, is providing a system for analyzing spectra from a specimen in an effort to detect whether at least one substance of interest is present in the specimen. *Freyre*, on the other hand, is apparently concerned with trying to detect whether a particular graphical object is within an electronic image, such as an image captured by a camera. See column 1, lines 11-24. Moreover, “(t)he problem confronted by the inventor must be considered in determining whether it would have been obvious to combine references in order to solve that problem.” *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 679, 7 U.S.P.Q.2d 1315 (Fed. Cir. 1988).

In addition, there is no cited deficiency in *Hartman* that would motivate one of ordinary skill in the art to seek solutions, such as those taught by *Freyre*. In this regard, where there is no apparent disadvantage present in a particular prior art reference, then generally there can be no motivation to combine the teaching of another reference with the particular prior art reference. *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349, 53 U.S.P.Q.2d 1580 (Fed. Cir. 2000). Further, “(o)ur case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.” *In re Dembicczak*, 175 F.3d 994, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999).

Moreover, when considering the teachings of the cited art as whole, including considering the different purpose of *Freyre* with respect to *Hartman*, it becomes apparent that the Office Action fails to establish a sufficient motivation for combining *Hartman* and *Freyre*. Accordingly, the combination of *Hartman* and *Freyre* is improper, and the 35 U.S.C. §103 rejection of claim 35 should be withdrawn for at least this reason.

Claims 36-41

Claims 36, 37, and 39 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Freyre*. In addition, claim 38 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Barringer* in view of *Hartman* and *Freyre*, and claims 40 and 41 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over *Schnell* in view of *Hartman* and *Freyre*. Applicants submit that the pending dependent claims 36-41 contain all

features of their respective independent claim 35. Since claim 35 should be allowed, as argued hereinabove, pending dependent claims 36-41 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 42

Claim 42 presently stands rejected under 35 U.S.C. §103 as allegedly being unpatentable over *Hartman* in view of *Freyre*. Claim 42 presently reads as follows:

42. A spectral correlation method, comprising the steps of:
receiving light from a specimen;
separating a first spectra of the light into its component colors;
optically multiplying the separated first spectra with a representation of a known second spectra to obtain an optical signal indicative of the degree to which the first spectra and the known second spectra are similar; and
detecting the optical signal. (Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 35, Applicants respectfully assert that the alleged combination of *Hartman* and *Freyre* is improper and fails to suggest at least the features of claim 42 highlighted hereinabove. Accordingly, Applicants request that the 35 U.S.C. §103 rejection of claim 42 be withdrawn.

Claims 43 and 44

Claims 43 and 44 have been newly added via the amendments set forth herein. Applicants submit that the pending dependent claims 43 and 44 contain all features of their respective independent claim 42. Since claim 42 should be allowed, as argued hereinabove, pending dependent claims 43 and 44 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 45

Claim 45 has been newly added via the amendments set forth herein. Claim 45 presently reads as follows:

45. A spectral correlation method, comprising the steps of:
receiving light from a specimen;
filtering the light with an optical filter indicative of a known spectra
corresponding to at least one substance such that a spectra of the light is optically
multiplied depending on a similarity between the spectra of the light and the known
spectra;
determining whether the at least one substance is present in the specimen
based on the filtered spectra; and
providing an indication as to whether the at least one substance is present in
the specimen based on the determining step.

Applicants respectfully assert that the cited art fails to disclose or suggest each of the above features of claim 45. Accordingly, claim 45 is allowable.

Claims 46-50

Claims 46-50 have been newly added via the amendments set forth herein. Applicants submit that the pending dependent claims 46-50 contain all features of their respective independent claim 45. Since claim 45 should be allowed, as argued hereinabove, pending dependent claims 46-50 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

CONCLUSION

Applicants respectfully request that all outstanding objections and rejections be withdrawn and that this application and all presently pending claims be allowed to issue. If the Examiner has any questions or comments regarding Applicants' response, the Examiner is encouraged to telephone Applicants' undersigned counsel.

Respectfully submitted ,

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